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EXAMINER
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ZHEN, LI B

ART UNIT	PAPER NUMBER
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2126

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/664,531

Applicant(s)

WILSON ET AL.

Examiner

Li B. Zhen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-55 and 57 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20, 36-44, 54, 55 and 57 is/are rejected.
- 7) ☒ Claim(s) 21-35 and 45-53 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Claims 1 – 55 and 57 are pending in the application.

#### ***Allowable Subject Matter***

2. Claims 21 – 35 and 45 – 53 are objected to as being dependent upon a rejected base claim. Claims 21 – 35 and 45 – 53 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, first paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1 – 55 and 57 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The independent claims recite the limitation “wherein the functional application module include a network monitoring function which is accessible using a plurality of network management protocols via the second interface” [claim 1, lines 17 – 19 and claim 54, lines 23 – 24]. There does not appear to be a written description of the

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claimed limitation in the application as filed. Examiner was unable to locate any discussion of a functional application module that includes a network monitoring function which is accessible using a plurality of network management protocols via the second interface in the specification. Although the specification discloses a network management function application module [i.e., p. 18, lines 23 – 28; p. 19, lines 7 – 12; p. 24, lines 4 – 27; p. 27, lines 4 – 34; p. 28, lines 22 – 36], there does not appear to be written description of the claimed limitation “wherein the functional application module include a network monitoring function which is accessible using a plurality of network management protocols via the second interface” in the specification as filed.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1 – 3, 5 – 7, 9 – 18, 36 – 44, 55 and 57 are rejected under 35 U.S.C. 102(b) as being anticipated by “The Phoenix Framework: A Practical Architecture for Programmable Networks” (hereinafter Yadav, cited in previous office action).**

7. As to claim 1, Yadav teaches a method for providing a virtual device container [proactive device object (PDO); left col., p. 3] to virtually extend the functionality of a

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network device [proactive services are Java objects with well-defined interfaces that provide new functionality; left col., 4<sup>th</sup> paragraph, p. 2] on a network for supporting a plurality of functional application modules [an agent (an encapsulation of code and state; right col., 1<sup>st</sup> paragraph, p. 2] residing in a server [proactive console can also be used to created new mobile agents; right col., 2<sup>nd</sup> paragraph, p. 2] on the network, said method comprising the steps of:

receiving a function request sent from one of the functional application modules [agent first makes a request to the PEnv for the interface of the PDO for the device it wants to operate upon; right col., 1<sup>st</sup> section, p. 4], the function request corresponding to the network device [mobile agent arrives at the active device; right col., 1<sup>st</sup> section, p. 4];

selecting one of a plurality of functional component modules in response to the function request [the agent then asks the PDO for the proactive service it needs access to; right col., 1<sup>st</sup> section, p. 4], each of the functional component modules corresponding to a respective one of the functional application modules [proactive services permit third parties to add a new functionality to an active device; Proactive Service, right col., p. 2], the selected functional component module corresponding to the functional application module which sent the function request [PDO creates and configures an instance of the requested proactive service and returns a reference to the agent; right col., 1<sup>st</sup> section, p. 4]; and

executing the selected functional component module according to the function request [agent invokes the proactive service to perform the necessary actions; right col., 1<sup>st</sup> section, p. 4] wherein each functional component module communicates with the

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corresponding functional application module through a first interface [Proactive services are objects that expose one or more interfaces; right col., Proactive Services, p. 2] and communicates with the network device through a second interface [PEnv is a Java object that exposes a set of well-defined Java interfaces. These interfaces are the only method available to agents for programming and managing an active device; right col., Proactive Services, p. 2]; and

wherein the function application module includes a network monitoring function [network monitoring task (link utilization monitoring and configuration); left col., Scriptable Remote Network Management, p. 5] which is accessible using a plurality of network management protocols via the second interface [active devices are used by agents to perform a variety of tasks, including network monitoring; left col., Scriptable Remote Network Management, p. 5].

8. As to claim 2, Yadav teaches each functional application module implements a different network-wide application [these services can be used to enable network resource management, fault diagnosis, transcoding, and new protocol support; A Programmable Network Framework, left col., p. 2].

9. As to claim 3, Yadav teaches each functional component module provides functional support on behalf of the network device for each corresponding functional application module, respectively [proactive service on the left executes inside the PEnv,

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whereas the proactive service on the right interacts with some native library to manipulate the actual device; left col., first paragraph, p. 4].

10. As to claim 5, Yadav teaches one of the separate functional application modules implements a network management application [Scriptable Remote Network Management; p. 5].

11. As to claim 6, Yadav teaches one of the separate functional application modules implements a network security application [Intrusion Detection; p. 6].

12. As to claim 7, Yadav teaches one of the separate functional application modules implements a resource management application [these services can be used to enable network resource management, fault diagnosis, transcoding, and new protocol support; A Programmable Network Framework, left col., p. 2].

13. As to claim 9, Yadav teaches providing a description [repository of information...to manage the device] of each of the plurality of functional component modules for access by each of the plurality of functional application modules [PDO is the repository of information that is needed by PEnv to manage the device. A PDO also contains the configuration data for proactive services; left col., Configuration, p. 3].

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14. As to claim 10, Yadav teaches the function request contains a reference to one of the plurality of functional component modules [PDO creates and configures an instance of the requested proactive service and returns a reference to the agent; right col., p. 4].

15. As to claim 11, Yadav teaches the function request is a function call which is supported by one of the plurality of functional component modules [PDO creates and configures an instance of the requested proactive service and returns a reference to the agent; right col., 1<sup>st</sup> section, p. 4].

16. As to claim 12, Yadav teaches the function request is supported by an operating system component [native library] interoperability standard [the proactive service on the right interacts with some native library to manipulate the actual device; left col., first paragraph, p. 4].

17. As to claim 13, Yadav teaches an operating system registry contains a registry entry corresponding to each of the plurality of functional component modules [proactive console is the central repository for all Java class files representing proactive services and mobile agents; Proactive Console, p. 2].

18. As to claim 14, Yadav teaches the step of loading, by a functional component keeper module [Install and Storage Services; Proactive Services, p. 2], the functional



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component module corresponding to each registry entry for the network device in the operating system registry [Install and Storage Services are invoked by the proactive console to persistently install new services on an active device; Proactive Services, p. 2].

19. As to claim 15, Yadav teaches the loading step is performed in response to an initialization command [Install and Storage Services are invoked by the proactive console to persistently install new services on an active device; Proactive Services, p. 2].

20. As to claim 16, Yadav teaches the function request is a request for information [fault diagnosis] from the network device [these services can be used to enable network resource management, fault diagnosis, transcoding, and new protocol support; A Programmable Network Framework, left col., p. 2].

21. As to claim 17, Yadav teaches the function request is a request for the network device to receive information [these services can be used to enable network resource management, fault diagnosis, transcoding, and new protocol support; A Programmable Network Framework, left col., p. 2].

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22. As to claim 18, Yadav teaches the function request is a request for the network device to perform a function [agent invokes the proactive service to perform the necessary actions; right col., 1<sup>st</sup> section, p. 4].

23. As to claims 36 and 37, Yadav teaches the second interface is the network and the second interface is a serial bus [Interfaces provides by PEnv can be invoked locally or remotely using Java Remote Method Invocation (RMI); right col., Proactive Environment, p. 2].

24. As claims 38 and 39, Yadav teaches each functional component module reads data from a memory of the network device via the second interface [proactive service can interact with a device locally via a native library (provides access to device resources that cannot be accessed directly for Java); left col., p. 3].

25. As to claim 40, Yadav teaches one of the functional application modules is a proxy application [proxy for other devices] which provides a data interface over the network between the plurality of functional component modules and a third-party application [PEnv may contain more than one PDO when the active device is acting as a proxy for other devices (legacy, non-active). Whenever a network device needs to be managed, the proactive console sends the PDO for the device either to the device itself...or to some other active device that acts as a proxy for managing the actual device; Configuration, p. 3].

26. As to claim 41, Yadav teaches the function request is a generic request which is supported in the selected functional component module by a plurality of specific protocol requests, and wherein one of the plurality of specific protocol requests is sent from the selected functional component module to the network device based on a desired protocol for communication with the network device [proactive service can interact with a device locally via a native library (provide access to device resources that cannot be accessed directly fro Java) or remotely via Remote Procedure Call (RPC) mechanisms such as Java Remote Method Invocation (RMI), Microsoft Distributed Component Model (DCOM), and Common Object Broker Architecture (CORBA); left col., p. 3].

27. As to claim 42, Yadav teaches a second plurality of functional component modules [proactive services are Java objects with well-defined interfaces that provide new functionality; left col., 4<sup>th</sup> paragraph, p. 2] are used to support a second network device [networks are composed of heterogeneous devices; right col., p.4], and wherein each functional application module is supported by the corresponding functional component module for each network device [PDO creates and configures an instance of the requested proactive service and returns a reference to the agent; right col., 1<sup>st</sup> section, p. 4].

28. As to claim 43, Yadav teaches the virtual device container is a DCOM server [Microsoft Distributed Component Model (DCOM); left col., p. 3].

29. As to claim 44, Yadav teaches the function request is addressed to the virtual device container [the agent then asks the PDO for the proactive service it needs access to; right col., 1<sup>st</sup> section, p. 4].

30. As to claims 55 and 57, Yadav teaches a network computing device for providing a virtual device container to virtually extend the functionality of a network device on a network for supporting a plurality of functional application modules residing in a server on the network [PEnv may contain more than one PDO when the active device is acting as a proxy for other devices (legacy, non-active). Whenever a network device needs to be managed, the proactive console sends the PDO for the device either to the device itself...or to some other active device that acts as a proxy for managing the actual device; Configuration, p. 3], comprising a program memory for storing process steps executable to perform a method according to claim 1 and a processor for executing the process steps stored in said program memory [PEnv is running low on some critical resource such as CPU or memory; left col., p. 4].

***Claim Rejections - 35 USC § 103***

31. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**32. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yadav in view of U.S. Patent NO. 5,926,539 to Shtivelman [cited in previous office action].**

33. As to claims 4 and 8, Yadav does not teach function application modules that implement an e-mail application.

34. However, Shtivelman teaches an active network and extending the network to include new capabilities such as e-mail [capability is extended to multimedia communication, such as e-mails, video mails and the like; col. 4, lines 7 – 20].

35. It would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the teaching of applications modules that implement e-mail functionalities as taught by Shtivelman to the invention of Yadav because this provides an efficient means of distributing information internal to and external from an enterprise or business.

**36. Claims 19, 20 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yadav in view of U.S. Patent NO. 6,073,184 to Couturier [cited in previous office action].**

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37. As to claim 19, Yadav teaches providing interfaces between application modules Proactive Services, p. 2] but does not specifically identify the interface as a software bus.

38. However, Couturier teaches a method of transmitting notification in a distributed-application data processing network [col. 2, lines 11 – 29] and a software bus that enables objects to send and receive requests in a distributed environment [col. 5, lines 28 - 50; col. 6, lines 20 - 30].

39. It would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the teaching of a software bus as taught by Couturier to the invention of Yadav because this deliver requests to objects concerned and to return output values to client objects in transparent manner without the client object knowing where the objects are located in the network, how they are implemented, how they are stored, nor how they are executed [col. 1, lines 39 - 49 of Couturier].

40. As to claim 20, Yadav as modified teaches the dedicated software bus is managed by a software bus control module [notification service is a set of CORBA objects which operate on the software bus; col. 6, lines 22 - 30 of Couturier].

41. As to claim 54, Yadav as modified teaches a method for providing a virtual device container [proactive device object (PDO); left col., p. 3 of Yadav] to virtually extend the functionality of a network device [proactive services are Java objects with well-defined interfaces that provide new functionality; left col., 4th paragraph, p. 2 of

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Yadav] on a network for supporting a plurality of functional application modules [an agent (an encapsulation of code and state; right col., 1st paragraph, p. 2 of Yadav] residing in a server [proactive console can also be used to created new mobile agents; right col., 2nd paragraph, p. 2 of Yadav] on the network, said method comprising the steps of:

loading, by a functional component keeper module [Install and Storage Services; Proactive Services, p. 2 of Yadav] in the virtual device container, a plurality of functional component modules corresponding to a plurality of registry entries in an operating system registry [Install and Storage Services are invoked by the proactive console to persistently install new services on an active device; Proactive Services, p. 2 of Yadav], each of the functional component modules corresponding to a respective one of the functional application modules [PDO creates and configures an instance of the requested proactive service and returns a reference to the agent; right col., 1st section, p. 4 of Yadav];

establishing a direct connection between a requesting one of the functional application modules and the virtual device container over a dedicated software bus [After the IDL interface has been compiled, the resulting stub is linked to the implementation of the object; col. 6, lines 10 – 13 of Couturier] by using a globally unique identifier which corresponds to the virtual device container and which is obtained from the virtual device container via the dedicated software bus [object references which form the identifiers of the objects under consideration are replaced by identifiers

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for the software components under consideration, e.g. addresses; col. 5, lines 55 – 65 of Couturier];

receiving, over the direct connection, a function request sent from the requesting functional application module [agent first makes a request to the PEnv for the interface of the PDO for the device it wants to operate upon; right col., 1st section, p. 4 of Yadav], the function request corresponding to the network device and containing a function call [mobile agent arrives at the active device; right col., 1st section, p. 4 of Yadav];

selecting one of a plurality of functional component modules for supporting the function call [the agent then asks the PDO for the proactive service it needs access to; right col., 1st section, p. 4 of Yadav], the selected functional component module corresponding to the requesting functional application module [PDO creates and configures an instance of the requested proactive service and returns a reference to the agent; right col., 1st section, p. 4 of Yadav]; and

executing the selected functional component module according to the function call [agent invokes the proactive service to perform the necessary actions; right col., 1st section, p. 4 of Yadav], wherein each functional component module communicates with the network device through the network [Interfaces provides by PEnv can be invoked locally or remotely using Java Remote Method Invocation (RMI); right col., Proactive Environment, p. 2 of Yadav]; and

wherein the function application module includes a network monitoring function [network monitoring task (link utilization monitoring and configuration); left col., Scriptable Remote Network Management, p. 5 of Yadav] which is accessible using a



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plurality of network management protocols [active devices are used by agents to perform a variety of tasks, including network monitoring; left col., Scriptable Remote Network Management, p. 5 of Yadav].

### ***Response to Arguments***

42. Applicant's arguments filed July 16, 2004 have been fully considered but they are not persuasive.

Applicant argues, "no combination of Yadav, Shtivelman and Couturier is seen to teach or suggest at least the feature of a function application module that includes a networking monitoring function which is accessible using a plurality of network management protocols" [p. 19, lines 10 – 13]. Examiner submits that there does not appear to be written description of this new limitation in the specification [see 35 U.S.C. 112, first paragraph rejection above]. Even if the specification provides written description of this new limitation, Yadav clearly teaches a function application module that includes a network monitoring function [network monitoring task (link utilization monitoring and configuration); left col., Scriptable Remote Network Management, p. 5] which is accessible using a plurality of network management protocols [active devices are used by agents to perform a variety of tasks, including network monitoring; left col., Scriptable Remote Network Management, p. 5].

***Conclusion***

43. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

44. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Li B. Zhen  
Examiner  
Art Unit 2126

lbz



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SUPERVISORY PATENT EXAMINER  
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